

AMENDMENT

In the claims:

1. (currently amended) A method for creating automated inferences of physico-chemical relationships, comprising:

- 5 (a) extracting a database record from a structured literature database;
- (b) parsing the database record to extract one or more individual information fields, wherein the one or more individual information fields include a set of chemical or biological molecule names;
- (c) filtering the extracted set of chemical or biological molecule names to create a
- 10 filtered set of chemical or biological molecules names;
- (d) determining whether a chemical or biological molecule name from the filtered set has been stored in an inference database,
- and if not,
- storing the chemical or biological name in the inference database,
- 15 and setting a co-occurrence count to a starting value for each pair of names including the chemical or biological name and other names from the filtered set that the chemical or biological name co-occurs with;
- and if so,
- incrementing co-occurrence counts for each pair of chemical or biological
- 20 names including the chemical or biological name;
- (e) repeating steps (a)-(d) for unique database records in the structured literature database;

(f) ~~optionally constructing a connection network using a plurality of database records from the inference database including co-occurrence counts;~~

25 (fg) applying one or more analysis methods directly to database records in the inference database or to the optional connection network to determine metrics representative of possible inferences of physico-chemical relationships between chemical or biological molecules; and

(gh) generating automatically a plurality of inferences regarding physico-chemical
30 relationships between chemical or biological molecules using the metrics resulting results from the one or more analysis methods.

2. (currently amended) The method of Claim 1 further comprising providing a computer readable medium and storing having stored therein instructions for causing a processor to execute the steps of the method.

3. (original) The method of Claim 1 wherein extracting step includes extracting a plurality of database records with a pre-determined database record structure.

4. (currently amended) The method of Claim 3 wherein the extracting step includes extracting a database record with a pre-determined structure from a database containing indexed references. Medline, PubMed, Biological Abstracts or Science Citation Index databases.

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5. (currently amended) The method of Claim 1 wherein the parsing step includes parsing the database record to extract a record an information field indicating two or more chemical or biological molecule names ~~used in an experiment recorded in the database record.~~

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6. (original) The method of Claim 1 wherein the filtering step includes filtering the chemical or biological molecule names against a list of trivial chemical or biological molecule names to be ignored.

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7. (currently amended) The method of Claim 1 further comprising ~~wherein~~ the step of ~~optionally constructing a connection network includes constructing a connection network~~ including a plurality of nodes representing a plurality of chemical or biological molecules names and a plurality of arcs connecting the plurality of nodes, wherein the plurality of arcs represent co-occurrences between chemical or biological molecules.

8. (original) The method of Claim 1 wherein the applying step includes applying statistical analysis methods to co-occurrence counts stored in the inference database.

9. (original) The method of Claim 1 wherein the generating step includes generating automatically inferences for physico-chemical interactions between chemical or biological molecules using the co-occurrence counts stored in the inference database.

10. (currently amended) The method of Claim 9 wherein the physico-chemical interactions between chemical or biological molecules include physico-chemical interactions for chemical or biological molecules for biological cells.

11. (original) The method of the Claim 1 wherein the chemical or biological molecule names include natural or synthetic chemical compound or chemical molecule names or natural or synthetic biological molecule or biological compound names.

12. (original) The method of Claim 1 further comprising storing the plurality of inferences in the inference database.

13. (original) The method of Claim 1 further comprising applying subsequent analysis methods to the connection network to reject trivial inference associations.

14. (original) The method of Claim 13 wherein the subsequent analysis methods include assigning derived numerical values to arcs in the connection network based on co-occurrence counts, assigning derived numerical values to arcs in the connection network based on analysis of a temporal pattern of an inference association's co-occurrence count as a function of another variable, conducting a mutual information analysis, or conducting a Citation analysis.

15. (original) The method of Claim 1 wherein the step incrementing step includes incrementing a plurality of co-occurrence counts for pairs of chemical or biological molecule names in the filtered set.